



# Oklahoma

***NOAA is an agency that enriches life through science. Our reach goes from the surface of the sun to the depths of the ocean floor as we work to keep citizens informed of the changing environment around them. From daily weather forecasts, severe storm warnings, and climate monitoring to fisheries management, coastal restoration and supporting marine commerce, NOAA's products and services support economic vitality and affect more than one-third of America's gross domestic product. NOAA's dedicated scientists use cutting-edge research and high-tech instrumentation to provide citizens, planners, emergency managers and other decision makers with reliable information they need when they need it.***

***The following is a summary of NOAA facilities, staff, programs, or activities based in, or focused on, your state or territory: Starting with highlights, then by [congressional districts and cities or towns](#), and then [statewide programs](#).***

## [Highlights of NOAA in Oklahoma](#)

|   |   |        |
|---|---|--------|
| <a href="#">Arkansas-Red Basin River Forecast Center</a>                | Tulsa   | OK-1   |
| <a href="#">Lightning Mapping Array</a>                                 | El Reno, Yukon, Altus,<br>Granite, Oluslee,<br>Mangum, Duke,<br>Mountain Park | OK-3,4 |
| <a href="#">Storm Prediction Center</a>                                 | Norman  | OK-4   |
| <a href="#">Cooperative Institute for Mesoscale Meteorology Studies</a> | Norman  | OK-4   |

The state of Oklahoma also has one Cooperative Institute, two Weather Forecasting Offices, one Labs and Field Offices, and one Science on a Sphere® exhibition.

### Weather Forecast Offices

Tulsa OK-1

Norman OK-4

National Weather Service (NWS) Weather Forecast Offices (WFO) are staffed 24/7/365 and provide weather, water, and climate forecasts and warnings to residents of Oklahoma. There are 122 WFOs nationwide of which two are in Oklahoma. Highly trained forecasters issue warnings and forecasts for weather events, including severe thunderstorms, tornadoes, hurricanes, winter storms, floods, and heat waves to the general public, media, emergency management and law enforcement officials, the aviation and marine communities, agricultural interests, businesses, and others. Information is disseminated in many ways, including wireless emergency alerts, social media, [weather.gov](http://weather.gov), and NOAA Weather Radio All Hazards. Each WFO has a Warning Coordination Meteorologist who actively conducts outreach and educational programs that strengthen working relationships with local partners in emergency management, government, the media and academic communities. Forecasters provide Impact-based Decision Support Services (IDSS), both remotely and on-site during critical emergencies such as wildfires, floods, chemical spills, and major recovery efforts. To gather data for forecasting and other purposes, NWS WFO staff monitor, maintain and use Automated Surface Observing Stations and Doppler Weather Radar. In addition to the WFOs, NWS operates specialized national prediction centers and regional headquarters throughout the U.S. for a total of 168 operational units. Over 85% of NWS' workforce is in the field. For current Oklahoma weather, visit [www.weather.gov](http://www.weather.gov) and, on the national map, click on the relevant county or district.

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### Science On a Sphere®

Norman OK-4

Science On a Sphere (SOS) is a room-sized global display system that uses computers and video projectors to display planetary data onto a six-foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain in a way that is simultaneously intuitive and captivating what are sometimes complex environmental processes. It is located at the National Severe Storms Laboratory in Norman.

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#### **OK-1**

##### **Tulsa**

#### **National Weather Service (NWS) - Arkansas-Red Basin River Forecast Center**

Co-located with the NWS Weather Forecast Office in Tulsa, the NWS Arkansas-Red River Forecast Center (RFC) performs continuous river basin modeling and provides hydrologic forecast and guidance products for rivers and streams in a 208,000 square mile area that covers the entire state of Oklahoma and parts of Texas, New Mexico, Colorado, Nebraska, Missouri, and Arkansas. These products include forecasts of river stage and flow, probabilistic river forecasts, reservoir inflow forecasts, gridded precipitation estimates and forecasts, spring flood outlooks, and flash flood and headwater guidance. Some of the RFCs in the western and central U.S. also provide water supply forecasts. RFCs work closely with local, state and federal water management agencies, including the U.S. Army Corps of Engineers, U.S.

Bureau of Reclamation, and U.S. Geological Survey, to provide water and flood information for critical decisions (aka Impact-based Decision-Support Services or IDSS).

**National Weather Service (NWS) - [Weather Forecast Office](#)** - See [Page 2](#) for details.

### **OK-3**

#### **Goodwell**

**Office of Oceanic and Atmospheric Research (OAR) - [U.S. Climate Reference Network](#)**

The US Climate Reference Network (USCRN) is an operationally viable research network of more than 138 climate stations that are deployed nationwide. Data from the USCRN are used in various climate monitoring activities and for placing current climate anomalies into an historical perspective. The USCRN provides the United States with a reference network that contributes to an International network under the auspices of the Global Climate Observing System (GCOS). ARL/ATDD manage the USCRN in partnership with NOAA's NESDIS/NCEI.

#### **Lamont**

**Office of Oceanic and Atmospheric Research (OAR) - [Cooperative Global Air Sampling Network](#)**

NOAA's Earth System Research Laboratory Global Monitoring Laboratory(ESRL/GML) operates a Cooperative Global Air Sampling Network to measure the distribution and trends of carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>), the two gases most responsible for human-caused climate change, as well as other greenhouse gases and volatile organic compounds. Samples are collected weekly at fixed locations and on several commercial ships. The air samples are delivered to ESRL/GML, located in Boulder, CO. The observed geographical patterns and small but persistent spatial gradients are used to better understand the processes, both natural and human induced, that underlie the trends. These measurements help determine the magnitude of carbon sources and sinks in North America.

#### **Ponca City**

**Office of Oceanic and Atmospheric Research (OAR) - [Carbon Cycle Gases and Halocarbons](#)**

NOAA's Earth System Research Laboratory Global Monitoring Laboratory(ESRL/GML) operates a small aircraft-based North American network of sampling sites to measure vertical profiles of important greenhouse gas concentrations. Air is sampled above the surface up to approximately 25,000 feet above sea level using a relatively small, light, and economical automated system developed by ESRL researchers. These air samples are delivered to ESRL/GML in Boulder, Colorado for measurements of CO<sub>2</sub>, CH<sub>4</sub>, and other greenhouse gasses. This data will improve understanding and models of the global carbon cycle. Sampling is conducted bi-weekly. Some air samples from the small aircraft program are also analyzed for halocarbon gases that can destroy the stratospheric ozone layer. Halocarbon measurements help determine the effectiveness of efforts to protect and restore the ozone layer so it can protect us from the sun's ultraviolet radiation.

#### **Stillwater**

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### **OK-3, 4**

**[El Reno, Yukon, Altus, Granite, Oluslee, Mangum, Duke, Mountain Park](#)**

**Office of Oceanic and Atmospheric Research (OAR) - [Lightning Mapping Array](#)**

The National Severe Storms Laboratory's Oklahoma Lightning Mapping Array (OKLMA) provides three-dimensional mapping of lightning channel segments over west central Oklahoma and two-dimensional mapping of all lightning over most of Oklahoma.

#### **OK-4**

##### **Norman**

##### **National Weather Service (NWS) - [Storm Prediction Center](#)**

Located within the National Weather Center building on the University of Oklahoma South Research Campus and co-located with the NWS Weather Forecast Office in Norman and NOAA's National Severe Storms Laboratory, the NWS Storm Prediction Center (SPC) is staffed around-the-clock everyday to issue forecasts/outlooks and watches specifically for severe thunderstorms and tornadoes over the contiguous United States. The SPC also monitors fire weather threats across the U.S. and issues national-level fire weather outlooks. SPC is one of the nine NWS National Centers for Environmental Prediction.

##### **National Weather Service (NWS) - [Warning Decision Training Branch](#)**

The NWS Warning Decision Training Branch (WDTB) in Norman develops and delivers training on the integrated elements of the warning process within a NWS Weather Forecast Office. Part of the National Weather Service Training Center, the WDTB training activities provide basic and advanced weather radar operator proficiency, with an emphasis on the integrated data environment, warning methodology and situational awareness. The WDTB's goal is to increase expertise among NWS personnel in order to better serve the public in warning situations.

##### **National Weather Service (NWS) - [Radar Operations Center](#)**

The Radar Operations Center (ROC) provides centralized meteorological, computer software, maintenance, and engineering support for all 159 NEXRAD Doppler radar (WSR-88D) systems deployed worldwide. Supported by the Departments of Commerce, Transportation and Defense, the ROC is responsible for modifying and enhancing the WSR-88D systems during their operational life to meet changing requirements, technology advances and improved understanding of the application of these systems to real-time weather operations. The ROC also operates WSR-88D test systems for the development of hardware and software upgrades to enhance maintenance, operation and provide new functionality. The facility houses a help desk (open 24 hours, seven days a week) that assists radar sites with technical support more than 12,000 times each year.

##### **National Weather Service (NWS) - [Weather Forecast Office](#)- See [Page 2](#) for details.**

##### **Office of Oceanic and Atmospheric Research (OAR) - [Cooperative Institute for Mesoscale Meteorology Studies](#)**

CIMMS was established at The University of Oklahoma (OU). CIMMS provides a mechanism to link the scientific and technical resources of OU and NOAA to create a center of research excellence in mesoscale meteorology, regional climate studies, and related subject areas. The primary NOAA research research partner of CIMMS is the National Severe Storms Laboratory. CIMMS conducts research across five themes: (1) weather radar research and development; (2) stormscale and mesoscale modeling research and development; (3) forecast improvements research and development; (4) impacts of climate change related to extreme weather events; and (5) social and socioeconomic impacts of high impact weather systems.

##### **Office of Oceanic and Atmospheric Research (OAR) - [Science On a Sphere® at the National Severe Storms Laboratory](#)- See [Page 2](#) for details.**

**Office of Oceanic and Atmospheric Research (OAR) - [Uncrewed Systems Research Transition Office \(USRTO\) Project](#)**

Uncrewed Aircraft Systems (UAS) are used by NOAA to collect storm-damage information following severe storm events such as tornadoes or flash floods. The data are used to aid National Weather Service and emergency managers in disaster response operations, and they are also used by researchers to better understand severe storm structure and improve forecasts and warnings in the future, as it relates to the public and communication of associated hazards.

**Office of the Chief Information Officer (CIO) - [N-Wave NOAA Science Network](#)**

N-Wave is NOAA's science network connecting NOAA, academic, and state research network communities to data and resources needed to advance environmental science.

**Office of Oceanic and Atmospheric Research (OAR) - [Hazardous Weather Testbed](#)**

NOAA's Hazardous Weather Testbed (HWT) is a joint facility managed by the Weather Program Office, the Storm Prediction Center, and the NWS Oklahoma City/Norman Weather Forecast Office within the National Weather Center building on the University of Oklahoma South Research Campus. The HWT emphasizes developing, testing and evaluating severe weather forecast and warning techniques throughout the U.S.

**Office of Oceanic and Atmospheric Research (OAR) - [National Severe Storms Laboratory](#)**

The NOAA's National Severe Storms Laboratory (NSSL) serves the nation by working to improve the lead-time and accuracy of severe weather warnings and forecasts in order to save lives and reduce property damage. NSSL scientists are committed to their mission to understand the causes of severe weather and explore new ways to use weather information to assist National Weather Service forecasters and Federal, university and private sector partners.

**Office of Oceanic and Atmospheric Research (OAR) - [Southern Climate Impacts Planning Program](#)**

The Southern Climate Impacts Planning Program (SCIIPP) is a cooperative agreement between NOAA's Climate Program Office (CPO) and the University of Oklahoma. It is one of several Regional Integrated Sciences and Assessments (RISA) teams contributing to the development of knowledge, expertise, and abilities of decision-makers to plan and prepare for climate variability and change. SCIIPP serves a region including Oklahoma, Texas, Arkansas, Louisiana, and coastal Mississippi. From severe storms, flooding, drought, hurricanes and storm surge, heat waves, wildfires, to winter storms, the South experiences among the nation's most extensive collection of climate-related hazards, with many southern states ranking at or near the top of the lists in disaster declarations and billion-dollar disasters. SCIIPP's mission is to increase awareness and preparedness for current and future climate-related hazards through improved local mitigation planning; actively engage stakeholder groups to promote increased two-way knowledge transfer between climate scientists and decision makers; provide local, state, and regional decision makers with climate data that are comprehensive, accurate, and easy to access; and identify new, critical areas of applied climate research for the southern U.S. as technologies, research, and knowledge evolves. Core partners of SCIIPP include the Oklahoma Climatological Survey (OCS), the South Central Climate Adaptation Science Center (SC-CASC), the Cooperative Institute for Mesoscale Meteorological Studies (CIMMS), University of Oklahoma, Louisiana State University (LSU), the Southern Regional Climate Center (SRCC), the University of Nebraska - Lincoln, the University of Kansas, and Texas Sea Grant.

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**[Statewide](#)**

**National Marine Fisheries Service (NMFS) and National Ocean Service (NOS) - [Damage Assessment, Remediation, and Restoration Program](#)**

NOAA's Damage Assessment, Remediation, and Restoration Program (DARRP) assesses and restores habitat, fisheries, protected species and recreational uses that have been harmed by oil spills, chemical releases, and ship groundings. Working with federal, state, and tribal entities, and responsible parties, we have recovered funding from responsible parties for restoration of critical habitats, fisheries, protected species and recreational uses nationwide. These projects promote recovery of the ecosystem and provide economic benefits from tourism, recreation, green jobs, coastal resiliency, property values and quality of life.

**National Ocean Service (NOS) – [Regional Geodetic Advisor](#)**

The Regional Geodetic Advisor is a National Ocean Service (NOS) employee that resides in a region and serves as a liaison between the National Geodetic Survey (NGS) and its public, academic and private sector constituents within their assigned region. NGS has a Regional Geodetic Advisor stationed in Corpus Christi, Texas serving the Southern Plains region – Oklahoma and Texas. The Geodetic Advisor provides training, guidance and assistance to constituents managing geospatial activities that are tied to the National Spatial Reference System (NSRS), the framework and coordinate system for all positioning activities in the Nation. The Geodetic Advisor serves as a subject matter expert in geodesy and regional geodetic issues, collaborating internally across NOS and NOAA to ensure that all regional geospatial activities are properly referenced to the NSRS.

**National Weather Service - [NEXRAD \(WSR-88D\) Systems](#)**

NEXRAD is used to warn the people of the United States about dangerous weather and its location. This radar technology allows meteorologists to warn the public to take shelter with more notice than ever before. The NEXRAD network provides significant improvements in severe weather and flash flood warnings, air traffic safety, flow control for air traffic, resource protection at military bases, and management of water, agriculture, forest, and snow removal. NEXRAD radar has a range of up to 250 nautical miles, and can provide information about wind speed and direction, as well as the location, size, and shape of precipitation. There are 159 operational NEXRAD radar systems deployed throughout the United States and overseas, of which four are in Oklahoma.

**National Weather Service (NWS) - [Automated Surface Observing Systems Stations](#)**

The Automated Surface Observing Systems (ASOS) program is a joint effort of NWS, the Federal Aviation Administration, and the Department of Defense. The ASOS serves as the nation's primary surface weather observing network. ASOS is designed to support weather forecast activities and aviation operations and, at the same time, support the needs of the meteorological, hydrological, and climatological research communities. ASOS works non-stop, updating observations every minute, every day of the year observing basic weather elements, such as cloud cover, precipitation, wind, sea level pressure, and conditions, such as rain, snow, freezing rain, thunderstorm, and fog. There are 16 ASOS stations in Oklahoma.

**National Weather Service (NWS) - [Cooperative Observer Program Sites](#)**

The National Weather Service (NWS) Cooperative Observer Program (COOP) is truly the Nation's weather and climate observing network of, by and for the people. More than 10,000 volunteers take observations on farms, in urban and suburban areas, National Parks, seashores, and mountaintops. The COOP was formally created in 1890 under the NWS Organic Act to provide observational meteorological data, usually consisting of daily maximum and minimum temperatures, snowfall, and 24-hour precipitation totals, required to define the climate of the United States and to help measure long-term climate changes, and to provide observational meteorological data in near real-time to support forecast, warning and other public service programs of the NWS. There are 224 COOP sites in Oklahoma.



**National Weather Service (NWS) - [NOAA Weather Radio All Hazards Transmitters](#)**

NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service office. NWR broadcasts official Weather Service warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week. Working with the Federal Communication Commission's (FCC) Emergency Alert System, NWR is an "All Hazards" radio network, making it the single source for comprehensive weather and emergency information. In conjunction with Federal, state, and local emergency managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards – including natural (such as earthquakes or avalanches), environmental (such as chemical releases or oil spills), and public safety (such as AMBER alerts or 911 Telephone outages). Known as the "Voice of NOAA's National Weather Service," NWR is provided as a public service by the NWS. NWR includes 1100 transmitters covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories. There are 20 NWR transmitters in Oklahoma.

**National Weather Service (NWS) - [Incident Meteorologists](#)**

The NWS, as mandated by Congress, provides fire weather forecast products and services to the fire and land management community for the protection of life and property, promotion of firefighter safety, and stewardship of America's public wildlands. Since 1928, this effort has included providing critical on-scene support to wildfire managers via specially-trained NWS forecasters called Incident Meteorologists (IMETs). When a fire reaches a large enough size, IMETs are rapidly deployed to the incident and set-up a mobile weather center to provide constant weather updates and forecast briefings to the fire incident commanders. IMETs are very important members of the firefighting team, as changes in the fires are largely due to changes in the weather.

**National Ocean Service (NOS) - Students for [Zero Waste Week](#)**

Students are inviting their local communities to "Go Green and Think Blue" by joining them in the annual *Students for Zero Waste Week campaign*. During this campaign led by the Office of National Marine Sanctuaries, students focus on reducing land-based waste in order to protect the health of local marine environments. These young leaders are raising awareness of how single-use plastic and other types of litter affect the health of local watersheds, national marine sanctuaries, and the ocean. In addition, some schools are looking at ways to reduce their energy use on campus with hopes of raising awareness of how the burning of fossil fuels also impacts the health of the ocean.

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**More information for those offices may be found at [NOAA.gov](#).**

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